4.0 Environmental Consequences and Avoidance

4.1 IMPAIRMENT OF PARK RESOURCES AND VALUES

The National Park Service must consider the potential impacts of each alternative and the implications for impairment to the resources of the Preserve. The Organic Act of 1916, which established the National Park Service, and its amendments state:

> [The National Park Service] shall promote and regulate the use of the Federal areas known as national parks, monuments, and reservations, hereinafter specified…by such means and measures as to conform to the fundamental purpose of the said parks, monuments, and reservations, which purpose is to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations. (16 USC 1)

When determining if an impact on a particular resource will constitute impairment, NPS managers must consider the scale, duration, and severity of the impact, and the direct, indirect, and cumulative effects of the impact on the resource. According to the NPS Management Policies of 2001, an impact would be more likely to constitute impairment if it affects a resource whose conservation is:

- Necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park;
- Key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or
- Identified as a goal in the park's general management plan or other relevant NPS planning documents.

This policy does not prohibit impacts to park resources and values. NPS managers have the discretion to allow impacts to park resources and values when necessary to fulfill the purposes of the park outlined in its general management plan, provided the impacts do not constitute an impairment of the resource. Although Congress has given the NPS management discretion to allow certain impacts within parks, they are limited by the statutory requirement that the NPS must leave park resources unimpaired, unless specifically provided for by legislation or by the proclamation establishing the park.

4.2 LAND USE

4.2.1 Proposed Action

Since 1906, the land use for the UPRR right of way has been the operation and maintenance of a railroad. Since all permanent facilities will be contained within the right of way, implementation of the proposed project would have no permanent effect upon existing land use plans, policies, and practices. The project would establish no permanent incompatible land uses, and would be consistent with all applicable federal and county land use plans.

Construction would result in modest temporary land use impacts within existing, maintained UPRR right-of-way, which currently contains a large railroad embankment, a graded rail bed, railroad tracks, signal devices, bridges, and culverts. Traffic patterns adjacent to the project corridor would also be temporarily altered during construction due to the increase in the amount of vehicles needed for construction of the Proposed Action. Permanent traffic patterns are expected to remain unchanged. The current at-grade rail crossings at Cima Road, Cedar Canyon Road, and Globe Mine Road would be modified to accommodate increased track width, but operational characteristics of the crossings would remain unchanged. The crossings would be operational during construction, except for two or three closures of roughly 12 daylight hours each. The UPRR and Contractor Representative(s) would coordinate with the NPS Construction Coordinator for the posting of signs alerting drivers of the construction closures and available alternate routes, which would be other existing roads through the Preserve.

The proposed staging areas are previously impacted. Their future land use would not change as a result of their construction use, although post-construction clean up and restoration would in some measure result in improvements over the current conditions.

The proposed action will not result in any permanent alteration of existing land uses within the Preserve. Recreational uses will not be impacted. Wilderness areas will remain as such, and transportation corridors will also not be permanently altered. Commercial and residential land uses in Cima and Kelso will also remain unchanged. As a result, the Proposed Action does not constitute impairment to current land uses within the Preserve.

Avoidance and Minimization Measures: The temporary land use impacts would be minimized or avoided through the implementation of construction impact and avoidance measures and BMPs identified in Section 2.1.2. Specifically, the avoidance measures applicable to this resource are: Staging Area Controls, Decompaction, Surface Contouring and Revegetation, and Access Controls. Impact avoidance will also be minimized by compliance with conditions attached to the requisite land use permits and approvals. By implementation of these avoidance measures, no mitigation would be necessary, since no substantial impacts to land use are anticipated as a result of the proposed project.

4.2.2 No Action Alternative

The No Action alternative, construction activities that would temporarily affect land use would not occur. Therefore the No Action alternative would not impact or otherwise change any existing land uses and as a result would not constitute an impairment of land use resources.

4.2.3 Conclusion

The Proposed Action would have minor short term impacts on land use during construction activities. There will be temporary construction staging areas within the right of way where construction materials, equipment, and temporary office space will be located. These facilities do not currently exist within the right of way. The existing land use for the UPRR right of way is for the operation and maintenance of a railroad. In the long term horizon, this will remain unchanged.

4.3 WILDERNESS AREA

4.3.1 Proposed Action

The Proposed Action would not spatially affect the wilderness area lying east of the UPRR corridor, as there will be no construction activity outside of the eastern boundary of the right of way. Wildland fire, potentially ignited by construction activities, could possibly degrade the adjacent wilderness area if such fire occurred. Furthermore, no permanent facilities will be constructed outside of the UPRR right of way. However, construction-related noise, lighting, and visual changes could have a minor effect upon the ambience of the wilderness area and setting. Given that the current track carries 35 freight trains per day, the addition of two passenger trains per day will not increase long term train noise levels by any detectable amount. Typically, in rural environments, and increase in noise levels of 3 dBA must occur in order to be detectable by humans. Generally, this correlates to a doubling of current train traffic assuming train equipment remains constant.

The Proposed Action will not have long term impacts on the adjacent wilderness area as no construction activity or permanent facilities will be constructed within the wilderness area. Train noise from the two additional passenger trains will not increase current train noise levels that could result in impacts to the ambience of the wilderness area. As a result the Proposed Action is not expected to impair the wilderness resources within the Preserve.

Avoidance and Minimization Measures: The potential impacts to the adjacent wilderness area will be avoided or minimized by the implementation of the measures and BMPs identified in Section 2.1.2. Specifically, the measures taken to prevent wildland fires and the response plan to respond to fires should they occur. Access controls on routes of travel will limit construction-related vehicles to existing access roads outside of the wilderness area. Construction area limits fencing and inspection will also serve to keep construction vehicles out of the adjacent wilderness areas. By implementation of these impact avoidance and minimization measures, no mitigation would be necessary because no substantial impacts to the wilderness area would occur.

4.3.2 No Action Alternative

Since under the No Action alternative there would be no change to existing conditions, wilderness would remain as it is today. As a result, there is no impairment of wilderness resources under the No Action alternative.

4.3.3 Conclusion

The Proposed Action will have no short or long term impacts on the physical properties of the adjacent wilderness area as there will be no construction activity in the wilderness area and no permanent facilities would be constructed in the wilderness areas. The project could have short term impacts on the ambience of the adjacent wilderness area during construction but are expected to be very minor. There would be no detectable increase in permanent train noise levels as a result of the Proposed Action.

4.4 GEOLOGY AND SOILS

4.4.1 Proposed Action

Surface disturbance for the 19-mile long project would total 108 acres. One hundred of these acres affect previously disturbed habitat such as the top of the existing railroad embankment, existing dirt access roads, and the existing grade crossings. About eight additional acres will be new disturbance due to signal pad construction, flood control installations associated with the bridge widening and culvert wing wall additions, and portions of the earthwork staging areas.

In Phase 1 of the Proposed Action, a total of 28,700 bank cubic yards of soils will be excavated from the top of the existing embankment and from the Phase 1 borrow site. All of this material will be redistributed within the Phase 1 limits for signal pad construction and embankment widening for bridge and set-out track construction. Based on the construction methods outlined in the Construction Operations Plan, the maximum amount of soil disturbance at any one time during Phase 1 will be 5,467 bank cubic yards between mileposts 249.81 and 250.69 along the top of the existing rail embankment.

Phase 2 will excavate 24,000 bank cubic yards of soils from the top of the existing rail embankment and from the Phase 2 borrow site. All of this material will be redistributed within the Phase 2 limits for signal pad construction and embankment widening for signal pads and bridge construction. Based on the construction methods outlined in the Construction Operations Plan, the maximum amount of soil disturbance at any one time during Phase 2 will be 4,427 bank cubic yards between mileposts 238.73 and 239.41 along the top of the existing rail embankment.

While the rail bed already exists for track installation, construction would result in major soil disturbance but minor changes in the landform, particularly where bridges are to be widened and signal pads will be constructed. Soil disturbance within the proposed project area would be confined to the removal of the five existing siding tracks, replacement of siding switches, installation of crossovers, construction of the mainline and setout tracks, and widening of the existing bridges and culverts.

The proposed project is not expected to impair any geologic resources within the Preserve, as the project will not result in changes to the landform or geologic make-up of the soils within the Preserve. Impacted soils would be expected to recover from the disturbance and therefore would not result in a permanent loss.

Avoidance and Minimization Measures: Potential impacts to the geology and soils will be minimized by implementation of avoidance/minimization measures outlined in Section 2.1.2. Specifically, decompaction of construction areas, and the restoration of disturbed areas to their natural contour would result in recovery of the soils and vegetative cover over time.

All excavated materials would remain on-site and be used for other portions of the construction, and measures would be taken during construction to avoid and minimize sedimentation into washes and soil erosion (see Section 2.1.2). In particular, the potential for soil erosion impacts would be substantially reduced through implementation of the Storm Water Pollution and Prevention Plan and Erosion Control Plan. This reduction would be enhanced through the use of other BMPs, such as:

- Erosion and sediment traps as needed;

- Removal of sediment trap and erosion control at completion of work;
- Control of pollutants other than sediment on construction site;
- Maintenance of temporary and permanent erosion and sediment controls
- Watering of disturbed areas to prevent wind erosion

By implementation of these measures no mitigation would be necessary because no substantial impacts to geology or soils would occur.

4.4.2 No Action Alternative

Since under the No Action alternative no construction activity or construction of permanent facilities would occur, there would be no impact or changes to the current geology and soils in the project area and therefore no impairment to geologic or soil resources within the Preserve.

4.4.3 Conclusion

The proposed project is not anticipated to impact current geology and soil resources in the project area either in the short or long term. Major surface disturbance of the existing soils will occur but their overall geology will not change. There will be no importing of foreign fill materials and because the railbed is already wide enough for the new second track, the general landform of the project area will remain unchanged. Minor changes in landform that could occur by sedimentation and siltation will be avoided by the use of erosion control measures.

4.5 WATER RESOURCES

4.5.1 Proposed Action

The proposed project would cross the following desert washes: Kelso, Cedar, and numerous unnamed washes tributary to the Kelso and Cedar washes all of which empty into Soda Lake. There are no alluvial wetlands or riparian species associated with these almost entirely vegetation-free sandy washes in the project area. There are no streams, rivers, lakes, or wetlands within the proposed project area. However, since desert washes are considered jurisdictional under Section 1603 of the California Fish and Game Code, Table 4.1 is included to identify the permanent and temporary impacts to each of the project area's "waters" that could potentially result from individual culvert and bridge improvements. The impact figures in Table 4.1 were calculated through measurement of the engineering drawings. (See Figure 2-1 for a map of culvert/bridge locations, which are keyed to the engineering drawings in Appendix A.)

Permanent impacts for each culvert would result from excavating two small footing trenches and erecting temporary forms, and then pouring concrete for the wing walls that are to be added to each existing culvert at the foot of the embankments bordering the wash. For bridges, permanent impacts would result from the similar construction of two concrete abutments, a bridge deck, two concrete abutment extensions/wing walls, in a few cases two or more concrete pier extensions, and occasionally a concrete apron with or without a cutoff/curtain wall. Total permanent impacts associated with the project would be 0.9 acre. The permanent impact area per culvert/bridge work site would range from a minimum value of 0.001 acre to a maximum value of 0.082 acre.

Temporary impacts would result from two types of construction activity. First, limited surface disturbance and minor compaction would be caused by the movement of construction equipment and vehicles within washes adjacent to culvert/bridge work sites. Second, sediments excavated from footing trenches would be temporarily stored in spoil piles for future use as fill material to be placed behind the wing walls/abutments or at other engineered fill locations within the project area. Although these temporary impacts would be of low intensity and occur within very small areas, their precise scale and location is not readily definable outside the operational context of construction itself. Therefore, a conservative "worst case" approach was taken in defining the temporary impact zone of each work site as the entire extent of the associated wash upstream from the edge of permanent impacts to the UPRR right-of-way limit. Total temporary impacts associated with the project, as defined in the "worst case" sense, would be 2.436 acres. The temporary impact area per culvert/bridge would range from a minimum value of 0.011 acre to a maximum value of 0.181 acre.

In order to lessen permanent and temporary impacts to "waters" (washes) in the project area, the following procedures, detailed in Section 2.1.2 would be undertaken.

- Erosion control measures shall be in place during construction to reduce impacts caused by erosion and siltation.
- Any remaining spoil piles shall be removed, disturbed areas recontoured, and compacted surfaces loosened by mechanical means following construction.
- A California Fish and Game Code Section 1603 Streambed Alteration Agreement shall be obtained from the California Department of Fish and Game to ensure that no substantial impacts to streambeds (washes) would occur.

Table 4.1 - Permanent and Temporary Areas of Impact

Engineering Drawing	Railroad Milepost	Structure Type	Structure Span (feet)	Temporary Impact (acres)	Permanent Impact (acres)
A-2	236.58	Bridge	30.0	0.051	0.019
A-28	236.88	Culvert –single	16.0	0.009	0.001
A-28	237.15	Culvert –single	16.0	0.009	0.002
A-28	237.57	Culvert –single	22.0	0.013	0.004
A-28	237.83	Culvert –single	22.0	0.013	0.004
A-3	238.3	Bridge	30.0	0.067	0.021
A-4	238.73	Bridge	45.0	0.087	0.028
A-28	239.20	Culvert –single	22.0	0.013	0.004
A-5	239.41	Bridge	30.0	0.072	0.012
A-28	239.86	Culvert –single	16.0	0.009	0.002
A-6	240.11	Bridge	40.0	0.094	0.041
A-29	240.35	Culvert –double	21.0	0.012	0.003
A-29	240.55	Culvert –double	21.0	0.012	0.003

Engineering Drawing	Railroad Milepost	Structure Type	Structure Span (feet)	Temporary Impact (acres)	Permanent Impact (acres)
A-7	240.99	Bridge	60.0	0.110	0.041
A-8	241.60	Bridge	105.0	0.181	0.062
A-9	241.98	Bridge	60.0	0.116	0.034
A-28	242.42	Culvert –single	19.0	0.011	0.003
A-29	242.75	Culvert –double	21.0	0.012	0.003
A-10	242.98	Bridge	45.0	0.088	0.025
A-11	243.68	Bridge	20.0	0.058	0.008
A-12	243.96	Bridge	60.0	0.097	0.052
A-13	244.14	Bridge	45.0	0.094	0.030
A-14	244.55	Bridge	20.0	0.060	0.020
A-15	244.91	Bridge	30.0	0.075	0.032
A-16	245.37	Bridge	41.0	0.077	0.042
A-17	245.61	Bridge	20.0	0.060	0.045
A-18	245.95	Bridge	76.0	0.123	0.082
A-19	246.65	Bridge	120.0	0.198	0.070
A-29	246.93	Culvert –double	31.0	0.018	0.007
A-20	247.37	Bridge	20.0	0.057	0.005
A-21	247.78	Bridge	30.0	0.074	0.012
A-29	248.37	Culvert –double	21.0	0.012	0.003
A-28	248.62	Culvert –single	22.0	0.013	0.004
A-22	249.00	Bridge	20.0	0.056	0.025
A-23	249.51	Bridge	30.0	0.070	0.029
A-24	249.81	Bridge	61.0	0.115	0.054
A-25	250.69	Bridge	40.0	0.073	0.015
A-26	251.11	Bridge	20.5	0.056	0.019
A-27	251.63	Bridge	30.0	0.071	0.032
Total Area				**2.436**	**0.900**

The bridge at MP 251.63 is being constructed with an opening larger than the existing opening. This will result in elimination of the washout problem that occurs at that bridge after heavy rainfalls and will decrease sedimentation. This will enhance water resources within the Preserve by reducing the amount of sediments that is carried by storm water into natural drainages. As a result of these measures built into the project construction plan, no mitigation would be necessary because no substantial impacts to water resources would occur. Hydrologic modeling was performed for the bridge at MP 251.63 due to some erosion that has previously occurred at that location, and it was determined that the widening of bridges and extension of culverts was

sufficient for both the 50- and 100-year flood events. Under UPRR standards, runoff from a 50-year flood event should not reach the bottom of the bridge span and a 100-year flood event should not reach the ties. No changes in streambeds or conveyances will occur as a result of the proposed project.

The NPS Water Resources Division has determined that the proposed project is exempt from NPS Executive Order 11988 – Floodplain Management because there are no practicable alternatives to the location to the project as the railroad embankment is already in place and is wide enough to support the new second track. NPS Special Directive 93-4 states under Section V, Subsection B, "This guideline does not apply to actions which are functionally dependent upon locations in proximity to water and for which non-floodplain sites are never a practicable alternative."

The revegetation program could also help enhance water resources by reducing the amount of sediments that get washed into natural drainages and water courses. Plants act to anchor the soils together reducing the amount of siltation that occurs due to erosion.

Avoidance and Minimization Measures: Impacts to water resources within and outside of the project area will be avoided or minimized by implementation of the measures outlined in Section 2.1.2. Specifically, silt fencing, stabilized construction entrances, construction road stabilization are all intended to minimize temporary construction related impacts to water resources. Additionally, permanent impacts to water resources will be avoided by revegetating disturbed areas that were disturbed during construction. The Proposed Action will help fund an NPS-led revegetation program that can be used to restore areas that were previously disturbed but are not currently used for railroad access or maintenance activities.

Except for short term construction impacts, the project is expected to cause no impairment of water resources within the Preserve.

4.5.2 No Action Alternative

Under the No Action alternative, current impacts to water resources would remain unchanged. However the washout problem at Bridge 251.63 will continue to occur, as the bridge opening will not be increased. Although the water flow through Bridge 251.63 would be ameliorated by the Proposed Action, the current condition not an impairment of water resources within the Preserve. Under the No Action alternative this would remain as such.

4.5.3 Conclusion

The proposed project could have some minor short term impacts to ephemeral water courses and water quality during construction, and for the time it takes the revegetated areas to take hold. These are expected to be very minor due to the implementation of the various avoidance and minimization measures. However, permanent improvement of water quality is expected to result from this project due to the revegetation program and the improvement to the opening at Bridge 251.63. These improvements would not be realized if the proposed project was not built.

4.6 TRANSPORTATION

4.6.1 Proposed Action

The Proposed Action will provide travelers between Los Angeles and Las Vegas the option of traveling by train rather than by automobile. Based on the proposed service frequency and assuming full trains of 260 passengers, this would equate to an average reduction of 62,434 automobile trips per year[1], primarily from Interstate 15. Although not expected to effect traffic congestion significantly, the proposed passenger service will provide the public increased transportation options between the two cities. Additionally, the Proposed Action will install grade crossing protection devices at Cedar Canyon Road and improve the approaches to the grade crossings within the project limits. This will have a beneficial long term effect on transportation safety within the Preserve

The proposed project could result in temporary negative impacts to transportation patterns during construction. Earthwork activities will require slower dump trucks to transport excavated material along Kelso-Cima Road for placement elsewhere on the project. There will also be a temporary increase in traffic within the Preserve due to the number of construction vehicles that will be used to build the project. Modification of the existing grade crossings at Cima Road, Cedar Canyon Road, and Globe Mine Road would require two or three temporary road closures of about 12 hours each.

Except for short term impacts to transportation patterns within the Preserve during construction, the Proposed Action will not cause any long term negative modifications to transportation patterns or infrastructure within the Preserve and does not constitute an impairment of transportation within the Preserve.

Avoidance and Minimization Measures: Impacts to existing transportation infrastructure and patterns will be avoided or minimized by the measures discussed in Section 2.1.2. Specifically, limiting construction vehicles to existing access roads and prohibiting heavy construction equipment on Cima-Kelso Road will help preserve the integrity of the transportation infrastructure as well as minimize traffic related impacts during construction. Worker car-pooling will be actively encouraged and indirectly forced by not paying for commuting mileage.

Temporary traffic impacts will be managed and minimized through the use of signage, detours, speed limit modifications and continuing coordination among the UPRR and Contractor(s) Representatives and NPS Construction Coordinator. As a result the inconvenience and possible safety effects of these closures would be substantially minimized.

Most construction workers would commute to one of the two staging areas and be ferried by UPRR personnel to specific work locations. Where this approach is not feasible, small crews would be allowed to park in designated areas near the work site but off the traveled way.

Given implementation of impact avoidance/minimization measures for traffic and transportation controls, no mitigation would be necessary because no substantial transportation impacts would occur.

[1] Assuming an average vehicle occupancy of 3.04 passengers per vehicle. This value was obtained from the Draft Environmental Impact Statement, P140 Cable Removal Project, Socorro, New Mexico to Mojave, California, 1997. One trip is defined as being between a single origin and destination, therefore from Los Angeles to Las Vegas and back is two trips.

4.6.2 No Action Alternative

Under the No Action alternative, no temporary transportation impacts as a result of construction would occur. However, improvements to the transportation infrastructure within the Preserve such as the grade crossing protection and improved approaches would also not occur.

The No Action Alternative will not alter any existing transportation patterns within the Preserve and as such, does not constitute an impairment of transportation within the Preserve.

4.6.3 Conclusion

The proposed project is likely to cause minor short term impacts to transportation within the Preserve both by the increased number of vehicles that will be using the Preserve roads to access the project and by the typically slower speeds that these vehicles travel. These impacts are expected to occur only for the duration of construction, and will be avoided or minimized by implementation of the impact avoidance measures described above and in Section 2.1.2. Further, permanent positive impacts to the transportation infrastructure and traffic patterns within the Preserve will not be realized if the proposed project is not undertaken.

4.7 AIR QUALITY

4.7.1 Proposed Action

The proposed project would result in exhaust emissions and dust from heavy equipment and support vehicles during the construction phase. Exhaust emissions are anticipated to be minor because construction equipment would be maintained and operated such that exhaust emissions are minimized. The pollutant of primary concern would be particulate matter (dust) generated during surface disturbance, but implementing Dust Control Plan detailed in Section 2.1.2 would substantially reduce this impact. Implementation of this plan would include using one or more of the Reasonably Available Control Measures (RACMs) required by the Mojave AQMD, as shown in Table 4.2.

Long term impacts to air quality from exhaust emissions from the two additional passenger trains is negligible. Each train set will be powered by a new F59PHI locomotive with computer-controlled fuel injection systems for maximum efficiency, and will produce emissions well below California's most stringent standards.

Table 4.2 – Proposed BACM/RACM Procedures for Construction of Proposed Action

Construction Activities	BACM/RACM Procedures
Earth-moving activities	Conduct watering as necessary to prevent visible dust emissions.
Track or carry out bulk materials (dirt, mud, sand, etc.) onto paved road.	Clean any deposition of material tracked out onto paved road. Install one or more track-out prevention device or other approved track out control device or wash down system at access points. Pave or gravel 50 or more consecutive feet at access points.
Use of unpaved haul or access road more than ½ mile in length	Apply gravel or re-crushed/recycled asphalt or other material of low silt to depth of three inches or more. Wetting – apply water one or more times daily. Permanent road closure. Reduce vehicle speeds by 50%. Reduce vehicle trips by 50%.
Use of unpaved road more than ¾ mile in length with 20 or more VMT per mile per day	Apply gravel or re-crushed/recycled asphalt or other material of low silt to depth of three inches or more. Reduce vehicle speeds by 50%. Reduce vehicle trips by 50%. Wetting – apply water one or more times daily.
Bulk material handling	Spray with water 15 minutes prior to handling and/or at points of transfer. Protect from erosion by sheltering or enclosing the operation and transfer line.
Bulk material transport	Completely cover or enclose haul truckloads of bulk material.
Haul trucks	Ensure cargo compartment of haul trucks are constructed and maintained so no spillage or material loss occurs from holes in floor, side and/or tailgate. Clean the cargo compartments of all haul trucks at the delivery site after removal of bulk material.
Record keeping	Records of BACM/RACM measures taken shall be kept on-site during construction.

Source: South Coast Air Quality Management District, 1998; Mojave Air Quality Management District, 1996.

The use of water to control dust could attract desert tortoise to the constructions area. Potential impacts to the desert tortoise from construction activities will me avoided an minimized by the monitoring and fencing measures outlined in Section 2.1.2.

The Proposed Action is not likely to permanently degrade air quality within the Preserve and does not constitute impairment of that resource.

Avoidance and Minimization Measures: Temporary air quality impacts will be avoided and minimized by implementing the avoidance and minimization measures outlined in section 2.1.2 as well as the procedures contained in Table 4.2 above. Specifically, stabilized construction

entrances, watering of areas subject to earthwork activities, and speed limit restrictions on dirt access roads will all be utilized to minimize the amount of dust generated. All portable engine-driven equipment units will be registered with the California Air Resources Board Statewide Registration Program, which regulates particulate matter emissions from portable engines registered with the program. By implementation of these avoidance and minimization measures, no mitigation for short term air quality impacts are needed.

4.7.2 No Action Alternative

Under the No Action alternative, there would be no temporary increase in construction-related dust emissions. There would also be no permanent change in air quality within the Preserve. As such, the No Action alternative will not impair air quality within the Preserve.

4.7.3 Conclusion

As a result of the proposed project, minor short term increases in the levels of particulate matter would occur from earthwork activities (dust) and construction equipment exhaust. These increases would only occur during construction and will be minimized through the use of the minimization measures such as a dust control plan and the Statewide Registration Program for portable engine use. The use of modern, lightweight passenger trains is not expected to increase particulate matter emissions from train operations in any appreciable amount.

Further, long term improvements in air quality will be realized due to a reduction in congestion on Interstate 15 and reduced "idle-times" for trains ascending and descending Cima Hill.

4.8 NATURAL AMBIENT SOUND

4.8.1 Proposed Action

Equipment noise would vary from place to place within the proposed project and throughout the duration of construction. Construction equipment operations would range from intermittent to fairly continuous, with multiple pieces of equipment operating concurrently. Typical construction equipment includes bulldozers, track-laying and ballast-laying equipment, cranes, compactors, and excavators. Equipment used for the construction of the proposed action would typically generate noise levels of 80 to 90 dBA at a distance of 50 feet.

Construction noise impacts upon natural ambient sound would be temporary. They also would not result in a substantial impact to the surrounding environment, in part because few sensitive human receptors would expect to be present adjacent to work areas. In addition, construction equipment shall conform to the provisions of the California Department of Transportation (Caltrans) Standard Specifications, *Section 7.101(I)*, Sound Control Requirements, which includes measures such as requiring the contractor to comply with all local sound control and noise level rules, regulations, and ordinances as part of the contract. Further, all the requirements of the Occupational Safety and Health Administration (OSHA) would be followed with regard to worker safety including equipping and operating internal combustion engines with mufflers.

The standard threshold of human perception is a change in noise level of plus or minus 3 dBA. At this level, changes in noise become noticeable to the human ear. The general criteria is that current rail traffic volumes must double to raise the noise level 3 dBA or half to lower the noise

level 3 dBA. (Casey, 2001) The definition of noise in this case refers to the general noise of railroad operations and includes, engine noise, vibration, and train whistles. At the current traffic volume of 35 freight trains per day, the addition of two passenger trains represents only a 6% increase in train volumes, well below the increase required to achieve a 3 dBA change in noise level.

The proposed project will also be constructed using continuously welded rail, where long sections of rail are welded together at their ends to form continuous lengths of rail. This produces a seamless connection between rail sections. The use of welded rail over jointed rail eliminates the "clickity-clack" sound that occurs when a train wheel passes over the gaps in jointed rail track further reducing noise from train operations.

As a result, the proposed project is not anticipated to cause a long term increase in noise level that would be detectable by humans and will not impair natural ambient sound within the Preserve.

Avoidance and Minimization Measures: In order to minimize construction related noise all construction equipment will comply with Caltrans specifications on sound control for construction equipment. Additionally, all engines and air-actuated tools used for construction will be equiped with exhaust mufflers and be regularly maintained to keep such mufflers in good working order.

Longer-term noise impacts will be avoided by the use of continuously welded rail for the new track construction, reducing the "clickity-clack" sound normally associated with jointed rail track.

Due to the fact that long term impacts to natural ambient sound will be negligible and short term impacts will be minimized and avoided by the measures detailed above, no mitigation for impacts to natural ambient sound will be required.

4.8.2 No Action Alternative

Under the No Action alternative, the project would not be built therefore no short term impacts to natural ambient sound due to construction related activities would occur. As in the proposed project, no changes in long term noise would be expected and no impairment of natural ambient sound would occur.

4.8.3 Conclusion

The proposed project is likely to cause short term disruption to the natural ambient sound immediately adjacent to the project corridor during construction. These effects will be minor due to the use and maintenance of muffler systems on all engines and air actuated construction equipment. There will be no change in long term noise levels as the percent increase in train volumes (6%) is below general criteria for noticeably increasing noise levels in rural areas.

4.9 BIOLOGICAL RESOURCES

Potential impacts on T&E wildlife and plant species associated with the project are evaluated in the BA (incorporated by reference into this EA) prepared per Section 7 of the Endangered

Species Act in consultation with the USFWS (refer to Appendix C – Correspondence). The following section summarizes the information provided in the BA related to native vegetation, T&E species and other sensitive species. Impact avoidance and minimization measures are detailed in Section 2.1.2. These impact avoidance and minimization measures are categorized into a Federal Monitoring Program and Best Management Practices (BMPs). The Federal Monitoring Program covers all species potentially occurring within the proposed project area as identified in the BA. The BMPs address erosion control measures, construction/equipment and hazardous wastes maintenance measures. The BMPs also includes a Storm Water Pollution Prevention Plan (SWPPP) in accordance with federal and state regulations to control non-point source pollution from runoff at all bridge construction, excavation and stockpiling sites.

4.9.1 Proposed Action

Vegetation

The proposed project would have a short term impact on vegetation during construction activities. Some pioneer vegetation is expected to recover following construction. Disturbed areas will be decompacted (scarified) so that vegetation can reestablish itself following construction. Only native plant species and seed mixes will be used for revegetation of disturbed areas.

This impact is considered minor for the following reasons:

- The project is located mostly in previously disturbed areas that are in various stages of revegetation.
- The construction impact area is limited to the right of way (108 acres along the 19 mile project alignment).
- The percentage of impact to the Mojave creosote scrub is minimal compared to that present within the total area.
- No sensitive vegetative communities will be disturbed during construction.

An indirect impact to vegetation may also result from the implementation of the proposed project. This impact would be due to any invasive/noxious species that may propagate in the disturbed area. Invasive species usually compete against native vegetation for habitat and are often pioneering species that thrive in disturbed areas. The severity of this impact is difficult to determine because the proposed action is located in areas with past and likely future disturbances such as railroad and utility maintenance and off-highway vehicle (OHV) use. There is no threat of invasive plants being introduced via the import of materials since all material excavated on site will be used for areas where excess material is needed, and ballast rock imported to the project area will be quarried and cleaned rock that is not likely to transport invasive species.

Avoidance and Minimization Measures: Implementation of impact avoidance/minimization measures specified in Section 2.1.2 will minimize impacts to native vegetation within the project corridor. Limiting construction access to existing roads will avoid the disturbance of vegetation outside of necessary construction areas. Utilizing borrow areas rather than importing required fill material, avoids the possibility of importing additional non-native invasive weeds and their seeds. Stockpiling and spreading of stripped vegetation on disturbed areas will encourage the re-

growth of native plant species. Decompaction of areas subjected to construction activities will allow native vegetation to take hold. As outlined in the Federal Monitoring Program, a federally approved biological monitor shall be present at each component of the construction phase. Should any sensitive plant species be identified, every reasonable effort shall be made to avoid an impact. By implementation of these construction Best Management Practices and avoidance/minimization measures there would be no long term impacts to vegetation within the project area and therefore no mitigation for vegetation would be required. Desert tortoise habitat will be compensated for in accordance with the pending USFWS Biological Opinion generally described in the compensation plan under Sensitive Species of this section.

Wildlife

The proposed project would have direct and indirect effects to common wildlife species within the project area. Construction activities will disturb 108 acres along the 19-mile long project corridor. The majority (100 acres) of these impacts will be to previously disturbed areas that currently support routine railroad maintenance and access activities. About eight additional acres will be new disturbance due to signal pad construction, flood control installations associated with the bridge widening and culvert wing wall additions, and portions of the earthwork staging areas.

With construction activity, wildlife present within the project area are anticipated to be temporarily disturbed due to the increased presence of construction vehicles and personnel. Temporary changes in mobility patterns, and foraging locations are expected. However, many of these species will most likely return to the area following construction. The potential for direct killing of wildlife will increase as a result of the construction traffic. These impacts are considered as minor and temporary.

Avoidance and Minimization Measures: Federally approved biological monitors will be present during construction to reduce impacts to wildlife. These monitors will work ahead of construction equipment to locate and relocate, if necessary, any wildlife within harm's way.

In addition, trash and sanitation control would be employed at each active work site and clean up would be conducted on a daily basis with the disposal of waste, garbage, refuse, or other such materials at designated locations.

Given implementation of the impact avoidance and minimization, no mitigation would be necessary because no substantial biological impacts to general wildlife would occur.

Sensitive Species

The construction of the proposed project would have short term and potential long term impacts to desert tortoise. Such impacts would result from disturbance to existing habitat within the UPRR right-of-way. While there is no suitable habitat on top of the railbed, tortoises have been known to occasionally burrow into the sides of the embankment and could be directly impacted by construction vehicles. These impacts are anticipated to be minor due to proposed avoidance, minimization, and conservation measures under the Federal Monitoring Program.

An impact assessment was conducted for the species that have been determined to be, or are likely to be, within the project area based on available existing information. The following nine sensitive species may occur within or near the proposed project area due to the presence of suitable habitat, but none of these species (other than desert tortoise) was observed or detected.

- Desert tortoise (*Gopherus agassizii*)
- Prairie falcon (*Falco mexicanus*)
- Burrowing owl (*Athene cunicularia*)
- LeConte's thrasher (*Toxostoma lecontei*)
- Bendire's thrasher (*Toxostoma bendirei*)
- Nelson's bighorn sheep (*Ovis canadensis nelsoni*)
- Red grama (*Bouteloua trifida*)
- Spearleaf (*Matelea parvifolia*)
- Curved-spine beavertail (*Opuntia curvospina*)

Potential suitable habitat for red grama, spearleaf, and curved-spine beavertail is present within the proposed project area, however no sightings have been recorded or observed within the project corridor.

The desert tortoise, the only federally listed T&E species that may be impacted by the proposed project, is known to occur and has historically occurred along portions of the UPRR mainline. Tortoise density in the project area is low as indicated by field surveys and previous land disturbances along the proposed route, including regular UPRR right-of-way maintenance and OHV activity(HDR Engineering, Inc., 2001, Biological Assessment). Construction of the proposed project could potentially result in direct take of desert tortoise (i.e., killing, harassment) due to the use of construction equipment, vehicle movement, and related activities within known occupied tortoise habitat. While stringent impact avoidance and minimization measures would be implemented, including pre-construction surveys to find and relocate any desert tortoises within the construction zone, monitoring during construction, and construction area fencing, a low level of incidental take would likely still occur. The primary impacts of the proposed project would result from the permanent loss of a small amount of Critical Habitat and temporary disturbances during construction to a larger amount of Critical Habitat. One positive effect of the project would be the removal of wire-mesh at the bridges. During the course of the desert tortoise surveys, several dead tortoises were discovered trapped in the wire-mesh. Another positive effect of the Propose Action will be the opportunity for the NPS to study the effects of the tortoise fencing on tortoise mortality rates within the Preserve.

The following two tables identify compensation rates for impacts to desert tortoise and its habitat. A detailed discussion regarding desert tortoise, its habitat and associated compensation is provided in the BA and survey reports.

Table 4.3 - Desert Tortoise Compensation Rates and Acreages for Phase 1

Factor	Category I Habitat	
	Disturbed	Undisturbed
Category of Habitat	3	3
Term of Effect	1	1
Existing Disturbance on Site	0	1
Growth Inducing Effects	0	0
Adjacent Habitat Impacts	0	0
Compensation Rate	4	5
Impacted Habitat (acres, rounded)	50	6
Compensation Acreage	200	30

Source: "Compensation For The Desert Tortoise", prepared by the Desert Tortoise Compensation Team (November 1991); HDR Inc., 2001.

Table 4.4 - Desert Tortoise Compensation Rates and Acreages for Phase 2

Factor	Category I Habitat	
	Disturbed	Undisturbed
Category of Habitat	3	3
Term of Effect	1	1
Existing Disturbance on Site	0	1
Growth Inducing Effects	0	0
Adjacent Habitat Impacts	0	0
Compensation Rate	4	5
Impacted Habitat (acres, rounded)	50	3
Compensation Acreage)	200	15

Source: "Compensation For The Desert Tortoise", prepared by the Desert Tortoise Compensation Team (November 1991); HDR Inc., 2001.

The compensation regarding Phase 1 is as follows: 200 acres for impacting 50 acres of disturbed areas and 30 acres for impacting six acres of undisturbed areas for a total of 230 acres. The compensation regarding Phase 2 is as follows: 200 acres for impacting 50 acres of disturbed areas and 15 acres for impacting three acres of undisturbed areas for a total of 215 acres. Thus, the total compensation acreage for desert tortoise habitat loss of disturbed and undisturbed areas for both Phase 1 and 2 as a result of project implementation is 445 acres.

The NPS will require that the UPRR meet compensation acreage requirements for desert tortoise habitat loss either by transferring suitable parcels of UPRR land to the NPS for inclusion in the

Preserve, or by transferring a pre-determined sum of money to the National Park Foundation for purchase of private lands within the Preserve. The final compensation method will be negotiated between the NPS and the UPRR.

The compensation of critical habitat is expected to have beneficial impacts on Desert Tortoise. By giving the NPS control over 445 acres of privately owned land, protection of desert tortoise can be more closely monitored, critical habitat restored or maintained, and development can be minimized.

However, potential impacts will be minimized and compensated by avoiding direct tortoise mortality to the greatest extent feasible. Any take resulting from the proposed project is unlikely to jeopardize the continued existence or recovery of the desert tortoise or any other listed species.

Surveys for all T&E species shall be conducted in accordance with protocols outlined by the USFWS. Federally approved biological monitors shall be present at all times during construction.

Construction monitoring shall be performed by a biologist authorized to handle desert tortoise. A clearance survey for desert tortoise shall be conducted within 30 days prior to ground disturbance. All workers present in desert tortoise habitat shall be educated regarding tortoise conservation methods. This education shall include instructions regarding checking under vehicles prior to moving them; prescriptions against moving or startling the desert tortoise; and what to look for while driving in the area. All workers will also be trained on removal of construction debris and litter so as to reduce the potential for an increase in ravens into the area.

The proposed project is likely to have minor short term impacts on biological resources during construction which will be minimized under the Proposed Action. The proposed project will not impair biological resources within the Preserve over the long term.

Avoidance and Minimization Measures: Section 2.1.2 outlines several measures that will be taken during construction to avoid or minimize potential impacts to sensitive species. The following, extracted from the Biological Assessment, describes general conservation measures to reduce impacts to desert tortoise during construction.

UPRR will develop a desert tortoise procedure card that shall outline the actions necessary to comply with the threatened status of the desert tortoise and the prohibition of take. This card will be distributed to all employees and it will identify person(s) authorized to handle desert tortoise. The federal monitoring program outlined in Section 2.2 above will include monitoring of any desert tortoises that have been relocated from the project area in order to determine if desert tortoises are discouraged from using the relocation area as habitat.

Pre-construction surveys will be conducted at each phase of the project within 24-48 hours prior to ground disturbance. An authorized biologist will examine and conspicuously mark all occupied burrows within 100 feet of the track for the presence of desert tortoise. An authorized biologist, approved by USFWS, will have demonstrated experience with desert tortoise involving techniques to locate desert tortoise and their sign, including correct tortoise handling. If any desert tortoise burrows were found, they would be assessed for tortoises and eggs. If the burrows are within the direct impact area they would be crushed after tortoises and/or eggs had been relocated. Tortoises and/or eggs would be removed and relocated by an USFWS-approved biologist. Burrows within the construction area but not the direct impact area would be cleared

of tortoises and eggs. The entrances would then be blocked to prevent from becoming reoccupied by other tortoises. Blockages to the burrow entrances would be removed after construction completion. Burrows outside of the limits of construction will be flagged, so that biological monitors could more easily relocate them during construction.

During construction activities, signs indicating the following will be posted at the construction trailer site where workers are likely to congregate prior to the days work activities. These signs will be maintained by UPRR as a reminder to all employees. The signs shall state:

- The area is a desert tortoise area
- Desert tortoises are protected by law
- It is illegal for unauthorized persons to handle or harass desert tortoises

Any occupied desert tortoise burrows that collapse during project construction and implementation activities must be immediately excavated and the desert tortoise translocated to another burrow less than 300 feet from the original burrow site. If no burrows are located, an artificial burrow will be created. Any aboveground desert tortoise found within the rail corridor or within 150 feet of the construction site will also be translocated to an abandoned or artificial burrow no less than 300 feet from the rail line if the on-site biologist believes it is threatened with construction activities.

Protective fencing would be used to enclose cleared static work sites, staging areas, and access routes during construction. Fencing would also be used to preclude desert tortoise movement into the West Side and East Side portions of UPRR right-of-way. Several other measures would prevent increases in predator populations or possible impacts from certain construction-related activities.

Trash and food items derived from project operations will be promptly placed in raven and coyote proof containers and disposed of appropriately to reduce the attraction of tortoise predators to the area. Storage of waste that could provide food for ravens and other wildlife will be in areas that are not accessible to wildlife. Litter and road killed wildlife on the roads and access areas for the proposed project will be removed to minimize the potential to attract ravens or other desert tortoise predators. If an increase of raven population during construction activities is observed with an associated increase of desert tortoise mortalities, an active raven control program may be implemented with the monitoring activities.

A federally approved biological monitor would be present during all aspects of construction, and should a desert tortoise wander onto the project site during construction, construction would be halted within the immediate area until the tortoise had moved off the project site and out of harm's way. If a stationary desert tortoise were located on the project site and remain unmoving, construction would be halted within the immediate area until an authorized biologist had moved it out of harm's way. All workers present in desert tortoise habitat would be educated regarding desert tortoise conservation methods, including instructions regarding checking under vehicles prior to moving them, prescriptions against moving or startling desert tortoises, and what to look for while driving in the area.

The biologist will provide a full report to NPS and USFWS of all desert tortoises that are found and moved from harm's way. This information shall include the following:

- Locations (narrative and maps) and dates of observations
- General conditions and health, any apparent injuries and state of healing and whether animals voided their bladders when handled
- Locations moved from and locations moved to
- Diagnostic markings (e.g. identification numbers or previously marked lateral scutes)

Upon the completion of construction, disturbed areas would be restored. This would entail mechanical decompaction, remedial grading to match natural contours, and revegetation using topsoil saved as inoculums and native plant stock from NPS sources.

4.9.2 No Action Alternative

Under the No Action alternative, the project will not be constructed so no short term impacts to biological resources would occur. As a result, the No Action alternative does not constitute an impairment of biological resources within the Preserve. However, if the project were not constructed, several longer-term benefits to biological resources would fail to be realized. First, the wire mesh that currently is located around the riprap slope protection at the bridge sites would not be removed. This wire mesh has been known at times to trap desert tortoise. Second, the revegetation of areas previously disturbed and the associated increase in sensitive species habitat would not occur. Third, the NPS would lose the opportunity to study the effects of the tortoise exclusion barrier, which could be left in place after construction, on the reduction of desert tortoise mortalities on Kelso-Cima Road. Fourth, the NPS would lose the opportunity to take 445 acres within the Preserve out of private ownership and into the control and management of the NPS.

4.9.3 Conclusion

The proposed project is likely to impact biological resources due to loss of habitat and conflicts with construction activities. These impacts are considered to be short term and minor in nature given implementation of the avoidance and minimization measures proposed, and the potential to gain, by means of compensation, far more habitat than is lost. This along with the potential to study tortoise exclusion barriers, the removal of the wire mesh at the bridge sites, and the revegetation of previously disturbed sites will combine to have a beneficial long term effect on biological resources within the project area and the Preserve in general.

4.10 PALEONTOLOGICAL RESOURCES

4.10.1 Proposed Project

No paleontological resources were identified, and none are known to exist within the proposed project area. However, some potential for discovering these resources remains during excavation at bridges and culverts, in which case implementation of the Federal Monitoring Program detailed in Section 2.1.2 would result in a temporary stoppage of work at the affected area until the NPS Construction Coordinator had decided upon and carried out an appropriate course of action.

Due to the lack of known paleontological resources within the project corridor, and the fact that most of the excavation on this project is from the top of the man-made, previously disturbed embankment where fossils or bones are unlikely to be found, there will likely be no impairment to paleontological resources within the Preserve.

4.10.2 No Action Alternative

Under the No Action alternative the proposed project would not be constructed therefore there would be no excavation and no effect on potential paleontological resources. As a result, there will be no impairment of paleontological resources within the Preserve.

Avoidance and Minimization Measures: Given implementation of the Federal Monitoring Program, specifically the suspension of work activities in the immediate area of a paleontological find and the daily pre-construction surveys, no mitigation would be necessary because no substantial impacts to paleontological resources would occur.

4.10.3 Conclusion

No paleontological resources were identified or have been recorded to exist within the proposed project corridor. As a result there will be no short or long term impacts to paleontological resources. The Federal Monitoring Program detailed in Section 2.1.2 does however require immediate suspension of work activities in the immediate area should an unknown paleontological resource be found either by construction activities or in daily pre-construction surveys.

4.11 CULTURAL RESOURCES

4.11.1 Proposed Action

NPS Policy (Director's Order 28, Cultural Resource Management) defines cultural resources as aspects of a cultural system that are valued or significantly representative of a culture or that contain significant information about a culture. Cultural resource can be tangible entities or cultural practices. The proposed project corridor can be considered part of American culture due to the prominent role of the railroads in the settling of the Western frontier. Only through continual maintenance and upgrading did the railroads maintain this key role in the growth of the United States. Beginning in the mid 1800's the Western railroads enabled the free flow of goods and passengers that allowed our country to expand westward. The proposed action, in keeping with railroad culture of continual adaptation and evolution, intends to upgrade the existing railroad in order to preserve the efficient delivery of goods but also to once again return passenger rail transportation to this corridor true to the history of the corridor. While this may disturb historical aspects of the railroad facility, it is in keeping with the culture of continual improvement that have been made over the last century.

Consultation with the California State Office of Historic Preservation (SHPO) is ongoing. A copy of *Cultural Resource Survey, Union Pacific New Second Mainline, Kelso to Cima, California* was sent to the SHPO on August 31, 2000. The SHPO responded on October 10, 2000 with a determination of no adverse effect provided the Proposed Action imposed certain avoidance measures outlined in their correspondence. These measures were incorporated into the avoidance and minimization measures of the Proposed Action outlined in this document.

Since the original SHPO determination, a change in the location of one of the earthwork staging areas was made. The new location was located closer to site CA-SBR-3054H on the east side of the existing rail embankment. The new location did not directly impact this site, but construction activities would now be taking place in close proximity to it, contrary to what was in the original plan sent to the SHPO. A modification letter was sent to the SHPO on July 27, 2001. Review of the modification by the SHPO is ongoing and expected to result in the same determination of no adverse effect. Copies of the above referenced correspondence are included in Appendix C.

The proposed project would impact a portion of site CA-SBR-1910H, which is not considered eligible for NRHP listing. There would be no effect upon the within-APE portions of sites CA-SBR-3054H and CA-SBR-10,137H, which are presumed eligible for the NRHP and considered to be historic properties.

CA-SBR-1910H: The proposed project is designed to reconfigure the existing railroad between Cima and Kelso. The existing mainline tracks would be left in place, but other sets of rails, various signals, and other items of installed equipment would be demolished and replaced. New base material, sub-ballast, and ballast would be added along the east side of the embankment between Cima and a location slightly north of MP 236, and along a short stretch west of the existing Kelso Yard. Short sections of fill would be placed on the west side of the embankment at Cima, at a location about midway between MP 252 and MP 253, at a location about midway between MP 245 and MP 246, at a location straddling MP 245, and at a location between MP 236 and MP 237. Existing bridges would be doubled in width, where necessary, and wing walls or other forms of protection would be added to the east-side culvert extensions built in 1983-84.

However, site CA-SBR-1910H is not considered an historic property. As indicated in Section 3.10, this evaluation is due to the number, nature, and extent of prior modifications to various components of the railroad, including particularly the alterations that are less than 50 years of age. It follows that NPS's Section 106 responsibility regarding this cultural resource need not continue beyond the evaluation stage.

CA-SBR-3054H: The Cultural Resources Survey report concluded that the portion of this site lying within the APE should be presumed eligible for the NRHP and considered an historic property. Therefore, the potential for project-related effects is addressed below.

Design plans for the proposed project indicate that there would be no direct impacts to this site. All cultural materials within the APE are situated east of the existing embankment, while all fill-placement and other construction activities in the vicinity would be on top of the east-side embankment and on the west side of the tracks. The east side also would not be needed for access. Fill materials would be placed by rail, and construction equipment and personnel would access work areas via the existing embankment and possibly via graded dirt roads from Kelso-Cima Road.

The proposed project would also have no indirect impacts to the site area lying within the APE. The extant cultural items, which consist of refuse, foundation remnants, and a water tower, are best addressed as archaeological materials. Such materials are relatively immune to vibration and noise caused by construction equipment, which would be of very modest scale in the vicinity because all construction work would take place atop and on the west side of the embankment. Should an east-side staging area be selected north of the portion of site CA-SBR-3054H that lies within the APE, vibration or noise at the nearest cultural materials would also be negligible. In

addition, temporary construction-related vibration and noise in the vicinity are expected to be less than what is already generated by the frequent passage of large freight trains. Protective flagging and monitoring, per the Federal Monitoring Program, would ensure impact avoidance.

Given the foregoing analysis, it is concluded that the proposed project would have no effect upon the presumptive historic property designated as CA-SBR-3054H.

CA-SBR-10,137H*:* The Cultural Resources Survey report concluded that the portion of this site lying within the APE should be presumed eligible for the NRHP and considered an historic property. Therefore, the potential for project-related effects is addressed below.

Design plans for the proposed project indicate that there would be no direct impacts to this site. All cultural materials observed within the APE are located outside the work areas. Construction equipment and personnel would access work areas from the existing embankment and existing dirt access roads from Kelso-Cima Road. Protective flagging and monitoring, per the Federal Monitoring Program, would ensure impact avoidance.

The proposed project also would have no indirect impacts to this site. The extant cultural items, consisting of refuse and foundation remnants, are best addressed as archaeological materials. Such materials are relatively immune to the temporary vibration and noise created by construction equipment, which in the site vicinity are expected to be minimal and less than what is already generated by the frequent passage of large freight trains.

Given the foregoing analysis, it is concluded that the proposed project would have no effect upon the presumptive historic property designated as SLCS-S-10.

Avoidance and Minimization Measures: Section 2.1.2 of this document describes appropriate measures to avoid impacts to sites CA-0SBR-3054H and CA-SBR-10,137H. It is also a condition of SHPO concurrence with a determination of no adverse effect that the avoidance measures be implemented. Specifically these measures are pre-construction surveys by a qualified archeologist, marking of the site boundaries to prevent incursion, and suspension of work if one of the sites is breached. Additionally, construction vehicles will be restricted to existing access roads, and parking will only be allowed at designated sites.

As a result of the implementation of these measures, no mitigation for cultural resources is needed because there will be no impact to cultural resources.

Based on the determination that there will be no adverse effects to cultural resources, this project will not impair cultural resources within the Preserve.

4.11.2 No Action Alternative

Under this alternative, there would be no change in existing conditions for the within-APE portions of sites CA-SBR-1910A, CA-SBR-3054H, and CA-SBR-10,137H because there would be no construction activities. Therefore the No Action alternative will also not result in an impairment of cultural resources within the Preserve.

4.11.3 Conclusion

By implementation of the Federal Monitoring Program, and the avoidance and minimization measures detailed in Section 2.1.2, the proposed project is not anticipated to have an adverse

short or long term effect on cultural resources within the project corridor. This determination is shared by the California State Office of Historic Preservation which has issued a concurrence determination based on the implementation of the avoidance measures.

Further, in keeping with the cultural history of the American western railroads, this project will continue the evolution and adaptation of an existing rail corridor in order to meet the transportation needs of the public.

4.12 AESTHETICS

4.12.1 Proposed Action

During construction of the Proposed Action, the largest impacts to aesthetics within the Preserve will be from construction equipment and workers. As outlined in the Construction Operations Plan, there will be a two-month period per phase, where the maximum amount of workers and equipment will be on the project. The anticipated number of workers and equipment for that period is as follows, sorted by work task:

Table 4.5 – Equipment and Worker Requirements

Work Task	Equipment (each)[1]	Workers (each)[2]
Track Removal	7	25
Earthwork	21	29
Bridge Construction	15	16
Track Construction	23	57
Signal Construction	7	14
Restoration/Revegetation	5	14
Total	78	155

1) Includes all machinery to be used during construction of the project such as, scrapers, bull dozers, road graders, back hoes, front-end loaders, vibratory rollers, excavators, forklifts, spike pullers, cranes, ballast tampers, track laying machines, welding machines, air compressors, supply trucks, dump trucks, concrete trucks, pick-up trucks, and supervisory vehicles

2) Includes all equipment operators, laborers, supervisors, and monitors

This table represents the maximum amount of workers and equipment that will be in the construction area at any one time. The average number of workers and equipment will be less that what is shown.

UPRR generally does not work after dark for safety reasons and does not plan to do so for this project, but the possibility cannot be eliminated because construction schedules can be complicated by various uncontrollable factors. If needed at all, night lighting would be restricted to the areas of immediate work.

Staging areas will be located in previously disturbed areas, which will substantially minimize visual impacts due to low earth piles and/or construction equipment noticeable from Cima-Kelso Road. Nothing west of the embankment could be seen from areas to the east of it. Construction activities on top of the embankment would be briefly visible from Cima-Kelso Road, or for

longer periods from the perspective of anyone moving on foot, but the distance from viewing areas and the low profile of workers and equipment would tend to make the effect considerably less than that of the 35 large freight trains currently passing slowly along the embankment per day. Trucks passing along Cima-Kelso Road could produce more of an aesthetic disturbance, but these are expected to be minimal as normal earthwork operations will keep truck passages spaced apart. In addition, Section 2.1.2 specifies measures to prevent the accumulation of trash or debris, and to ensure the regular removal of equipment and stored earth as quickly as possible. The temporary aesthetic impacts due to construction are therefore considered relatively modest in scale.

The addition of the new second mainline and the bridge extensions will not alter the existing landscape and general appearance of the area due to the prior presence of embankment-elevated mainline track, siding tracks, signals, bridges, culverts, and other facilities. Further the revegetation program will improve the aesthetics of the site of the train wreck site. As a result, the Proposed Action is not anticipated to impair aesthetics within the Preserve.

Avoidance and Minimization Measures: Impacts to aesthetics will be avoided and minimized by implementing the measures detailed in Section 2.1.2. Specifically, stabilized construction entrances will prevent the tracking of dirt and mud onto Kelso-Cima Road, and dust control measures will minimize particulate emissions that could otherwise reduce visibility. The decompaction, surface contouring, and revegetation measures will serve to restore disturbed areas to their natural condition after construction. No mitigation would be required, as potential aesthetic impacts during construction would be negligible with implementation of impact avoidance/minimization measures as provided for in Section 2.1.2.

4.12.2 No Action Alternative

Under the No Action alternative, temporary impacts that are likely to occur during construction would not happen as the project would not be built. The No Action alternative will not revegetate the site of the 1997 train wreck site and therefore will not improve the aesthetics of that site.

Since no degradation of the current aesthetic values of the Preserve would occur under the No Action alternative, this alternative does not constitute an impairment of aesthetics within the Preserve.

4.12.3 Conclusion

The proposed project is likely to have a short term impact on aesthetic resources along the project corridor during construction. These impacts are considered to be minor as a result of the avoidance and minimization measures described. The Proposed Action will also serve to enhance aesthetic values within the Preserve by revegetating the site of the train wreck. The effects of adding the new mainline track and the extension of the bridges are seen as minimal as these facilities will be added to an active railroad corridor that is already double-tracked in many locations because of the existing sidings.

4.13 RECREATION

4.13.1 Proposed Action

The proposed project is likely to have a temporary, minor impact upon recreation. The majority of these impacts will be due to increased traffic on Kelso-Cima Road due to construction activities. Access to the Mid Hills and Hole-in-the-Wall campgrounds via Cedar Canyon Road could be blocked for short durations of less than 12-hours when work is being performed on the Cedar Canyon Road grade crossing. Alternate access to these sites will remain open.

Positive effects of the proposed project is the addition of active grade crossing protection at the Cedar Canyon Road grade crossing. Flashing red lights and gates will be installed to warn motorists, bicyclists, and pedestrians of approaching trains. The gates will prevent motorists from crossing the path of an approaching train. The increases in visitor safety as a result of the active grade crossing protection will reduce the risk of accidents having a positive impact on recreational resources.

The NPS is investigating the possibility of stationing a Preserve interpreter on the train as well as showing videos of the Preserve on the on-board video system. This will have a positive impact to recreation by providing the opportunity for rail passengers to experience a remote part of the Preserve through those media as well as from observation of the Preserve through the train windows. The NPS is also exploring the possibility of a future station stop at the Kelso Depot so people could ride the train to visit the Preserve. The practicality of a stop at Kelso Depot will be determined by the NPS, UPRR, and Amtrak.

No long term negative impacts to recreational resources within the Preserve would occur as a result of the proposed project and as such, does not constitute an impairment of that resource.

Avoidance and Minimization Measures: The proposed avoidance and minimization measures detailed in Section 2.1.2 will be implemented to minimize the impact the proposed project would have on recreational resources during construction. Maintenance of traffic and traffic safety measures will be used, including flagging and coordination of grade crossing closures with the NPS Construction Coordinator. This would allow the posting of notices of grade crossing closures at convenient visitor stopping points such as the Kelso Depot and Baker, CA. The NPS Construction Coordinator would also be available to direct visitors to alternate routes to their destination. Given implementation of impact avoidance/minimization measures as described, no mitigation would be necessary because no long term recreation impacts would occur.

4.13.2 No Action Alternative

Under the No Action alternative the project would not be built so there would be no impacts to recreation as a result of construction activities. Accidents at the Cedar Canyon Road grade crossing would continue to occur from the lack of crossing gates and flashers.

Under no action, the opportunity for rail passengers to experience the Preserve by passing through and with on-board interpreters and video would be lost.

Under the No Action alternative no changes in current recreational resources would occur, therefore there would be no impairment of recreation within the Preserve.

4.13.3 Conclusion

The project is likely to cause minor, short term impacts on recreation within the project corridor due to the increase in construction traffic on Kelso-Cima Road. Recreation could also be effected by aesthetic impacts. These impacts would occur only for the duration of construction. No displacement of or modification to trails, campgrounds or other recreational facilities would occur. The proposed project would have no long term negative effects on recreation. The project would have a positive long term effect on recreation in the form of increased visitor safety at the Cedar Canyon Road grade crossing.

4.14 PUBLIC SERVICES AND UTILITIES

4.14.1 Proposed Action

Public utilities are concentrated in the Kelso and Cima areas and include water, sanitary sewer, telephone lines, and electric service. A UPRR communication and power line runs parallel to the existing tracks within the right-of-way for the entire length of the project. There are few instances of a utility crossing the tracks underground and/or overhead, primarily concentrated at Kelso area but with some occurrences at Cima. In all cases, the affected public utility has been contacted by UPRR and coordinated with regarding utility locations.

Since the project would be constructed on previously placed fill, the few utility crossings that do exist within the project area would unlikely be affected. The planned relocation of the UPRR communication and power lines would be coordinated with other construction activities, as with the other utilities.

Emergency response services could be impacted by intermittent short duration closures of the grade crossings during construction activities. The grade crossings will be most likely be closed three times, for intervals of less than 10 hours each time. In all cases a temporary grade crossing can be constructed in less than one-half an hour to permit passage of emergency vehicles.

Avoidance and Minimization Measures: Due to coordination with utilities as a part of the project, no mitigation would be needed. Utility location services will be utilized before construction to find and mark all utilities in the construction area.

Avoidance measures for emergency service access across the grade crossings include the development of a Wildland Fire and Emergency Response Plan. According to this plan, the Federal Interagency Communications Center (FICC) would be notified of grade crossing closures in advance by the Railroad Representative. The FICC would contact the Railroad Representative if, in the event of an emergency, a grade crossing needed for access will be established. The FICC would contact the Railroad Representative when the emergency call came in, so that the grade crossing could be opened by the time the emergency vehicles reach the grade crossing.

The proposed project is not anticipated to impair public services or existing utilities within the Preserve because existing utilities and public services will be maintained.

4.14.2 No Action Alternative

There would be no impact on utilities or public services as a result of the No Action alternative and therefore no impairment of those services.

4.14.3 Conclusion

Due to the small amount of utilities that would be affected by the proposed project and the coordination of the project activities with the utility companies, there will be no short or long term effect on utilities.

The impacts on emergency response access is anticipated to be minor because of the short durations that the grade crossings will be closed and the emergency notification measures that are proposed.

4.15 SOCIOECONOMICS

4.15.1 Proposed Project

There are currently no plans for the proposed passenger service to stop at any stations between Los Angeles and Las Vegas which could encourage tourism-orientated development. The project will also be constructed within an active railroad corridor that currently supports 35 freight trains per day and no additional right-of-way purchases would be required. This is expected to have no effect on property values within the project corridor. As a result, no long term change in socioeconomic values are anticipated within the project corridor. Short term socioeconomic impacts from increased construction traffic along Kelso-Cima Road could occur although these impacts are considered negligible. The construction of the proposed project would have short term beneficial economic effects upon the proprietors of the general store at Cima, as some project expenditures and sundry purchases by construction workers are likely to occur.

With the exception of two NPS employees, all of the adult working residents of Kelso are employees of the UPRR.

No changes in population, housing, or social services would occur in the short or long term as construction workers would come in from outside locations on a daily basis and there are no plans to stop the passenger service anywhere within the project corridor. Some workers might stay overnight at Baker, California (35 miles northwest of Kelso), but most would be housed at Primm, Nevada (32 miles north of Cima).

The Proposed Action will not permanently alter the socioeconomic resources or values within the Preserve and as a result does not constitute impairment.

Avoidance and Minimization Measures: Socioeconomic impacts on area residents from increased construction traffic will be minimized by implementation of the traffic control and safety measures outlined in Section 2.1.2. No mitigation will be required due to a lack of long term socioeconomic impacts.

4.15.2 No Action Alternative

Under the No Action alternative the project would not be constructed so there would be no positive or negative economic effects. The residents of Kelso would not be temporarily

inconvenienced during construction, and the proprietors of the Cima general store would not see the temporary increases in sales during construction.

The Proposed Action will not change the socioeconomic resources or values within the Preserve and as a result does not constitute impairment.

4.15.3 Conclusion

Based on the fact that there are no stops planned within the project corridor, and no additional right of way is required, the Proposed Action is not likely to have any long term socioeconomic impacts. In the short term, the store at Cima could benefit from increased sales during construction of the project and the UPRR employees residing in Kelso will realize economic gain as they are likely to be work in some capacity on the proposed project.

4.16 ENVIRONMENTAL JUSTICE

4.16.1 Proposed Action

Environmental justice is defined as "the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people, including a racial, ethnic, or socioeconomic group, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies".[2]

Implementation of the proposed project would not result in any property takings and would not disproportionately affect any minority or low-income communities. The project would be constructed within the established UPRR right-of-way, and would have no adverse physical or functional impact on populations.

Further, this EA has been made available for review and comment under NEPA guidelines, with a public notice of the availability of the EA published in local newspapers. The process under NEPA ensures that information on the project and opportunity for comment would be an integral part of the environmental decision-making process.

The proposed project is not likely to cause any environmental injustices to any residents of the Preserve and as such is not considered an impairment of the residential resources within the Preserve.

Avoidance and Minimization Measures: No mitigation would be required because the proposed project would have no environmental justice impacts.

4.16.2 No Action Alternative

As with the proposed project, no environmental justice impacts would occur under the No Action alternative and therefore no impairment of residential resources within the Preserve.

[2] U.S. Environmental Protection Agency, Office of Enforcement and Compliance Assurance, Office of Environmental Justice.

4.16.3 Conclusion

The proposed project will constructed within an established railroad corridor that will cause a negligible increase in train traffic. All of the residents of Kelso are UPRR employees who make their living from the railroad and its operation, maintenance, and continued adaptation. As a result there is considered to be no environmental injustice borne by any of the residents of Kelso or Cima.

4.17 CUMULATIVE EFFECTS

Council on Environmental Quality regulations for implementing NEPA define cumulative effect as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-federal) or person undertakes such other actions" (40 CFR Section 1508.7). The cumulative impact assessment study area for proposed project includes the area affected by the proposed federal action taken by NPS, the subject of the previous impact discussions included in the EA, as well as the general region within about 30 miles.

The majority of planning agencies, utilities, highway departments, and other infrastructure providers can realistically foresee future development needs for no more than about three to five years. Plans beyond this time frame are generally speculative and not considered appropriate for inclusion in cumulative impact analyses. Therefore, the time frame established for "reasonably foreseeable" actions in present connections was defined as five years.

Information obtained to date does not indicate any major construction or expansion of existing utilities or roadways within the proposed project area within the next five years. It is expected that routine maintenance and repairs of these facilities will be ongoing throughout the life of those facilities. A search of applications accepted by the County of San Bernardino Land Use Services Department identified no project proposals within the project area or near vicinity. No other projects are proposed by the UPRR within the right-of-way corridor and vicinity.

One concurrent project will be the restoration or Kelso Depot as part of a visitor service enhancement project defined in the General Management Plan for the Preserve. The Kelso Depot restoration project, managed by the NPS, is currently scheduled to begin in December of 2001 and will last two and one-half years. The proposed project is currently scheduled to begin in January of 2002 and will last two years. Cumulative impacts from both of these projects occurring simultaneously will be increased construction traffic around Kelso, and corresponding impacts to aesthetics resulting from construction equipment. The proposed project will not modify any of railroad facilities directly adjacent to the Depot so even these cumulative impacts are expected to be minor.

The AT&T P140 Cable Removal Project was completed through the Preserve in November 1999. An obsolete coaxial cable crossed the UPRR right-of-way at MP 248.0 near Elora siding and was to be removed for economic reasons. Impacts to biological resources where the cable crossed the railroad tracks were minimal as the cable was encased in a conduit that ran under the railroad embankment. The ends of the conduit was exposed, the cable pulled out of the conduit, and the conduit ends backfilled. The conduit was left in place resulting in minimal surface disturbance.

In total, the AT&T Cable Removal project disturbed 69.8 acres of critical habitat within the Preserve. The largest impact was the disturbance of vegetation which is in various degrees of recovery. The project also had a long term impact on recreational access as may of the access roads that were used for maintaining the cable were closed. The project compensated for this habitat disturbance by providing 209.4 acres of land to the NPS. Similar impacts to vegetation would occur under the Proposed Action. Cumulatively the AT&T Cable Removal Project and the Proposed Action will have disturbed 179 acres within the Preserve, and will have provided compensation lands in the order of 654 acres.

4.18 FINDINGS ON IMPAIRMENT OF PARK RESOURCES AND VALUES

The NPS has determined that neither the implementation of the Proposed Action nor the No Action alternative would impair resources and values within the Preserve. This is based on a thorough evaluation of the environmental consequences contained in this document and the direction provided for by NPS Management Policies, section 1.4.

The Proposed Action will cause negligible adverse impacts, minor adverse impacts, short term impacts, and beneficial impacts to Preserve resources and values. By implementation of the avoidance and minimization measures such as the biological monitoring and revegetation program, adverse impacts are expected to be minimized. The majority of the impacts, such as impacts on recreation, transportation, water quality, and noise, are expected to last only during construction of the project, while others, such as impacts on desert tortoise and vegetation, will take a short amount of time after construction to re-establish. These impacts have limited severity and duration and will not result in a permanent, irreversible degradation of Preserve resources. As a result, the Proposed Action does not constitute impairment.

Long term beneficial impacts from the Proposed Action on biological resources will occur from the removal of the wire gabion walls, the tortoise exclusion fencing, the revegetation program, and the compensation for disturbed habitat. Long term beneficial impacts on recreation will occur by increasing the overall safety of Preserve visitors by the addition of the grade crossing protection devices at Cedar Canyon road. Long term beneficial impacts on aesthetics include the revegetation of previously disturbed sites by the NPS led revegetation program. Beneficial impacts do not constitute impairment.

The Proposed Action also best fulfills the specific purposes identified in the Mojave General Management Plan by providing the land or funds to purchase privately owned land within the Preserve, minimizing development and increasing control on environmental monitoring and enhancement.

The No Action Alternative will cause no adverse impacts to Preserve resources in the short or long term and does not constitute impairment. However, Preserve resources would not be enhanced by the beneficial long term impacts that will occur as part of the Proposed Action.

4.19 ENVIRONMENTALLY PREFERABLE ALTERNATIVE

Environmentally preferable is defined as “the alternative that will promote the national environmental policy as expressed in the National Environmental Policy Act’s Section 101. Ordinarily, this means the alternative that causes the least damage to the biological and physical environment; it also means the alternative which best protects, preserves, and enhances historic,

cultural, and natural resources" (Forty Most Asked Questions Concerning Council on Environmental Policy Act Regulations, 1981).

Section 101 of NEPA describes the guidelines by which each alternative in a proposal must be evaluated against in order to determine the environmentally preferable alternative. It states that "…it is the continuing responsibility of the Federal Government to… (1) fulfill the responsibilities of each generation as a trustee of the environment for succeeding generations; (2) assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings; (3) attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences; (4) preserve important historic, cultural, and natural aspects of our national heritage, and maintain, wherever possible, an environment which supports diversity, and variety of individual choice; (5) achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities; and (6) enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources." The environmentally preferable alternative for the Draft Environmental Assessment, Union Pacific Railroad New Second Mainline, Kelso to Cima, California is based on these NEPA objectives.

4.19.1 Proposed Action

This alternative will accomplish each of the objectives outlined in NEPA Section 101. The long term beneficial effects of the Proposed Action seek to enhance the environment for succeeding generations. Actions such as compensating the NPS for disturbed land with private land on which future impacts on Preserve resources can be more closely controlled, revegetation of previously disturbed areas not used for railroad operations and maintenance, installation of tortoise exclusion fencing, and removal of wire gabion walls which are known to trap desert tortoise, all serve to enhance the environment in the long term. The addition of crossing gates and flashers at Cedar Canyon Road will help to provide future Preserve visitors with a safer visitor experience.

The Proposed Action will be implemented in an environmentally responsible manner through the avoidance and minimization measures outlined in this EA. Its adverse impacts are seen as minor, temporary, and are largely isolated to the existing right-of-way that currently supports railroad operation and maintenance activities. Through the successful utilization of these measures, the surrounding environment will be left in a condition unimpaired for future generations.

The Proposed Action will preserve the historic, cultural, and natural aspects of our national heritage by continuing the adaptation of the western American railroads who, through that continual adaptation, played a prominent role in the settling of the American West. The Proposed Action supports diversity and individual choice by providing travelers between Los Angeles and Las Vegas additional transportation options between those two cities. It also widens the range of beneficial uses of the environment by returning passenger rail service to this corridor.

The Proposed Action represents a balance between the travel demand of the public and resource use within the corridor.

4.19.2 No Action Alternative

This alternative, although it represents the least change from current conditions and no temporary impacts to the Preserve, would fail to realize some of the beneficial long term effects of the Proposed Action alternative and therefore would fail to meet some of the objectives of NEPA Section 101. Although it is reasonable to assume that the NPS would find alternative methods and funding to procure private land within the Preserve, the Proposed Action provides this benefit where the No Action alternative does not. Other beneficial effects of the Proposed Action like revegetation of disturbed areas, tortoise exclusion fencing, wire gabion removal, and grade crossing protection would also not be realized. All of this would not serve to enhance the environment for succeeding generations.

The No Action alternative will also fail to provide diversity and individual choice of transportation options by not offering an alternative mode of transport to the airplane, personal automobile, or motorcoach. It will also fail to preserve one aspect of the historic and cultural heritage of the American West by restricting the adaptation of American railroads to meet the needs of the traveling public and not return this corridor to its history of a passenger railroad.

4.19.3 Summary

The National Park Service has determined that the environmentally preferable alternative is the Proposed Action. Although the action will cause some adverse impacts to resources within the Preserve, these impacts are considered adequately minimized by the avoidance and minimization measures, and temporary in duration. The benefits of enhancing the environment over the long term through implementation of the Proposed Action, far outweighs the temporary adverse impacts. The Proposed Action more completely achieves the goals outlined by NEPA Section 101. The Proposed Action: (1) serves to enhance and preserve the environment for succeeding generations; (2) attains the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences; (3) preserves important historic, cultural, and natural aspects of our national heritage, and maintain, wherever possible, an environment which supports diversity, and variety of individual choice; (4) achieves a balance between population and resource use which will permit high standards of living and a wide sharing of life’s amenities.